

## **Seven Lessons for Implementing a Health Information System**

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One of the most palpable changes in the daily lives of radiologists over the past few decades has been the transition from the use of hard copy to electronic image and information storage [1]. It is unfortunate that many predictable and avoidable difficulties with information system transitions are being repeated all over the country [2]. We present seven lessons that we believe can help other institutions avoid pitfalls and seize opportunities to succeed.

One of the most important opportunities to improve the adoption and implementation of new health information systems is to ensure good communication and collaboration between system designers and end users. End users such as radiologists need opportunities to test systems both before purchase decisions are made and early in adoption so that bugs can be identified and worked out long before a “go-live” date. Typically a series of meetings is necessary, permitting iterative learning as each new attempt at a solution is initiated.

A second opportunity is to enhance communication and collaboration within the radiology department itself. In too many cases, IT staff members are tasked with coordinating such implementations, and clinical radiologists are not sufficiently engaged in the process. Regular meetings involving all key departmental stakeholders are crucial. Colleagues need to assume extra work, and team members need to be present and focused on the challenges at hand.

Equally important is the third opportunity, communication between departments. It does no good to make life better for radiology department personnel if the work of referring physicians is made

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considerably worse. Key considerations are the format in which radiology examinations are requested and the nature of required information. For example, making available a good clinical history is important, but if the requirements for clinical information are too onerous, they can significantly disrupt the work of referring physicians.

A fourth opportunity is to avoid category errors. For example, the system we implemented included a field that distinguished between inpatient and outpatient status. When an inpatient was discharged, any outstanding orders for radiology examinations were automatically canceled. Although this seems reasonable in principle, it led to problems when patients transitioned between the emergency department and inpatient units. Needed examinations did not get performed, and examinations that were in progress during such a transition were not completed. Awareness of such pitfalls is crucial to avoiding them.

The fifth opportunity is to be decisive when decisions are called for. Suppose, for example, that a heading needs to be chosen for a particular field, and opinions differ as to what choice will work best. Certainly those involved need to take the time to investigate and discuss the options, but at some point it is better to make a decision that may eventually turn out to be suboptimal than to hold out for perfection. Failure to decide can lead to confusion about the plan, lack of clarity about operations, and a loss of trust in the implementation team.

The sixth opportunity is to get buy-in from all user groups. For example, radiologists need to see clearly what the transition in health information systems is intended to accomplish, as well as the benefits that will flow once the new system is fully installed and implemented. Unless this case is presented in a compelling fashion, many radiologists and trainees may resist investing the time and effort necessary to become adept with the new system. Especially important to avoid is the impression that the new system is being forced down the throats of those who will use it.

The final opportunity is this: No one should be blindsided by speed bumps. The odds that things will go precisely according to plan are low, and it is vital that people with appropriate expertise be on hand to address problems as they arise. Wherever possible, information should be shared within and across teams, so that everyone involved feels that they are being treated as partners, not guinea pigs. Ultimately, the system itself is less important than the relationships between professionals who need to work together effectively for many years.

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